AMENDMENTS TO THE CLAIMS:

Please consider the attached clean version of the entire set of claims (pages 14 and 15) by adding claim 1 and line 1 of claim 2, before line 1 of page 14 as follows in the replacement claims commencing on a separate sheet.

What is claimed is:

1. (previously presented) A method of predicting a lifetime of a filament for emitting thermoelectrons in an ion source, the method comprising:

successively measuring a resistance value of the filament during an operation of the ion source on the basis of current flowing through the filament and voltage across the filament; and

predicting the lifetime of the filament till the filament will be broken, on the basis of a rate of change of the resistance value.

2. (previously presented) A method of predicting a lifetime of a filament according to claim 1, further comprising:

computing a time till an application limits of the filament or a time left till the application limits of the filament, on the basis of a rate of change of the resistance value.

3. (previously presented) An ion source device comprising:

an ion source having a filament for emitting thermoelectrons;

a current measuring device for measuring current flowing through the filament;

a voltage measuring device for measuring voltage across the filament;

a resistance operation device for computing a resistance value of the filament by using the current and the voltage measured

by the current and voltage measuring devices; and

a prediction operation device for computing a time till an application limits of the filament or a time left till the application limits of the filament, on the basis of a rate of change of the resistance value computed by the resistance operation device.

4. (previously presented) An ion source device according to claim 3, further comprising:

a display device for displaying the time till the application limits of the filament or the time left till the application limits of the filament.

5. (previously presented) An ion source device according to claim 3, further comprising:

a comparing device for comparing the time left till the application limits of the filament with a predetermined reference value, and producing an alarm signal when the time left till the application limits of the filament is smaller than the predetermined reference value.